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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

1969 ANNUAL REPORT
OF

PLANT MATERIALS CENTER

COFFEEVILLE, MISSISSIPPI

PART I



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Organization of the
Soil Conservation Service
Plant Materials Center

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COFFEEVILLE PLANT MATERIALS CENTER

ANNUAL TECHNICAL REPORT

1969

This report covers the technical activities of the Coffeeville Plant Materials Center for the calendar year, 1969.

The Coffeeville Plant Materials Center is located approximately seven miles west of Coffeeville, Mississippi on the Tillatoba Road. It is situated in the loessial soil resource area and comprises about 195 acres of land leased from the U. S. Forest Service. The principal soils are:

Waverly - Poorly drained acid bottom land with 0 - 2 per cent slope.

Grenada silt loam - Moderately well drained upland soil with gentle to steep slope. Erosion is moderate to severe.

Calleyway silt loam - Somewhat poorly drained upland soil, nearly level to gently sloping. Erosion is slight to moderate.

Lesser amounts of other soils also occur there, giving varying soil conditions on which plants can be tested.

Weather Summary

Temperatures of the winter of 1968 - 69 were milder than usual. The summer of 1969 was quite hot, with periods of drought which affected certain crops adversely. Highs of 100 degrees + were recorded in late June. Periods of drought occurred in June, July, and August and rainfall was below normal in the fall of 1969. A monthly rainfall summary for the year follows:

January	3.08 inches	May	3.66 inches	September	3.49 inches
February	6.31 "	June	2.28 "	October	2.00 "
March	4.07 "	July	3.48 "	November	6.08 "
April	7.41 "	August	3.43 "	December	9.59 "

Total rainfall for the year, 55.04 inches.

Assembly of Plant Materials

A total of 236 new accessions of plants were received at this Center in 1969. The following list includes groups of ten or more accessions of plants and the principal conservation problem(s) for which they will be tested:

<u>Principal Conservation Problems</u>	<u>Species</u>	<u>Number of Accessions</u>
1. Potential as summer forage legumes	<u>Adesmia</u> , Adesmia	12
2. Possible cool season forage plants	<u>Agropyron</u> , Wheatgrasses <u>Bromus</u> , Bromegrasses <u>Helictotrichon</u> , Spikeoats <u>Festuca</u> , Fescue	34 6 4 3
3. Critical area stabilization and/or wildlife food plants on dry calcareous sites:	<u>Atriplex</u> , Saltbush	19
4. Possible warm season forage plants:	<u>Chloris</u> , Windmillgrass	26
5. Critical area stabilization:	<u>Cytisus</u> , Broom	10
6. Potential control of stream-bank and/or reservoir levee erosion:	<u>Paspalum distichum</u> , Knotgrass	11
7. Erosion control and/or warm season forage grasses. These have been observed for one growing season and some appear to have good potential:	<u>Paspalum nicorae</u> , Brunswickgrass	16
8. Warm season forage plants. These have been observed for one growing season and several produced large quantities of forage and seem to have good possibilities:	<u>Paspalum plicatulum</u> , Brownseed paspalum	23

In addition to the preceding 164 accessions, 72 additional accessions were received in lots smaller than 10. These will be observed for their potential to solve conservation problems to which they appear best suited.

Plans were made to make collections of Coreopsis sp. and Eupatorium coelestinum for observation as possible conservation-beautification plants. These collections were not made in 1969.

II. INITIAL EVALUATIONS

A total of 651 new and previously grown accessions were growing at the Coffeerville Plant Materials Center in 1969. Listed are a few plants in the initial observation which appear to have excellent potentials:

1. MS 2934 - Echinochloa frumentacea - This Japanese millet produced large amounts of seed which should be good waterfowl food. No disease, nor insect injury, was observed.
2. MS 3101 - Paspalum plicatulum - This plant is an excellent forage producer. It showed no insect damage and produced good quantities of seed despite a slight amount of ergot infection. It should be a good warm season forage plant if it is winter hardy.
3. MS 2916 - Hemarthria altissima, Hantgrass - This plant has withstood one winter at Coffeerville and has shown adequate winter hardiness. It produces large amounts of forage, spreads rapidly by stolons, and grows well over a long period of time. Very few, if any, viable seed are produced.
4. MS 3004 - Paspalum notatum - This wide leaf form of bahiagrass has made exceptional growth and spread its first year. The leaves are dark green and soft and the forage production is very good. Seed production is adequate with a high percentage of filled seed the first year. Acceptance and use may well hinge on whether it is winter hardy.
5. MS 2641 - Phalaris tuberosa - This cool season grass has a dense growth of leaves and is an exceptional forage producer. The leaves are soft and medium wide, and continue growth most of the winter. Seed production the first spring was good. This should be a good cool season forage plant.

III. ADVANCED EVALUATIONS

- A. MS 540, Phalaris arundinacea, reed canarygrass, was planted in a row 33 feet long on a continuous grade from 6 inches above water to 6 inches below water. Observations concerning water tolerance and seed production were made. The 6 inches of water did not retard growth appreciably; but few, if any, seed were produced anywhere along the row.

III. Advanced Evaluations - continued

- B. Hemoracallis sp., daylily. Eleven accessions were compared for vigor, spread, beauty, ground cover, etc. Four accessions do not vary considerably, but MS 2165, which is being increased, looks best. It makes a dense ground cover, spreads well by tubers, and has attractive blossoms.
- C. Lespedeza spp. Four accessions of Lespedeza were compared for value as plants to vegetate abandoned mine spoils, stabilize critical areas, and control erosion on cut slopes of roadbanks and similar areas. These four plants are:

Lespedeza cuneata, Nasu 10, sericea, MS 119
" " Common sericea, MS 2146
" intermixta, MS 280
" virgata, Spreading lespedeza, MS 126

Lespedeza virgata, MS 126, has looked best from an overall standpoint of vigor, spread, ground cover, growth characteristics, seed production, etc.,

- D. Tests have been under way for 20 months to determine the best date, and depth to plant five accessions of plants: Paspalum nicorae, MS 906; Echinochloa holubii, MS 924; Lespedeza virgata, MS 126; Panicum virgatum, MS 155; and Paspalum notatum, MS 131. The plantings were made at 0", 1/4", 1/2", 1", and 1 1/2" depths each month and when complete will cover a three year period. Results gained to date are inconclusive; but generalities for each are shown as follows:

Echinochloa holubii, Limpopograss, MS 924. Germination was better at the 1/4", 1/2" and 1" depths than at plantings either deeper or more shallow. Survival at all depths was rather constant.

Paspalum nicorae, Amcorae brunswickgrass, MS 906. Germination does not differ greatly between any of the five depths. Survival one year after germination is much better at the 1" or 1 1/2" planting depth.

Lespedeza virgata, spreading lespedeza, MS 126. Germination at the 0", 1/4", and 1/2" depths has been considerably better than at deeper plantings. Survival has been rather constant at all depths.

III. Advanced Evaluations - continued-

- D. Panicum virgatum, Pangburn switchgrass, MS 155. Germination has been best at depths of 1/2", 3/4" and 1". Survival at the 1 1/2" depth has not been so good as at the more shallow depths.

Paspalum notatum, Wilmington bahiagrass, MS 131. Germination at the 0" depth has been inferior to that of deeper plantings. Survival at all depths has been quite constant.

- E. Spartina patens, MS 2360, was planted vegetatively in rows grading from 6" above water to a 6" water depth to check for seed production. Seed production was poor the entire row lengths.
- F. Fescue. Eight accessions of fescue were planted in 5 x 20 ft. plots in October, 1967, on Grenada silt loam soil. They are being compared for total forage production, sod forming ability and only a small amount of summer growth from any of the eight. The results of a May 19, 1969 clipping are shown below:

Festuca arundinacea:

<u>Variety</u>	<u>MS No.</u>	<u>P o u n d s</u>	
		<u>Green Weight</u>	<u>Air Dry Weight</u>
Ky 31	1601	57	16
Artren	539	51	15 $\frac{1}{4}$
Goar	2656	43 $\frac{3}{4}$	15
Arflag	538	41	14
Alta	2658	41	13
Uruguay	2329	38	12
Fawn	2657	30 $\frac{1}{2}$	10 $\frac{1}{4}$
Kenwell	2659	29 $\frac{1}{2}$	9 $\frac{1}{2}$

- G. Lespedeza japonica. Three accessions of Lespedeza japonica, MS 1643, MS 1850, and MS 2503 were clipped in May and August to determine their ability to withstand a clipping regime. These plants have not made good recovery after the second clipping and forage production appeared to be reduced considerably.
- H. Four accessions of plants were planted in a stream channel near Coffeetown in 1966 for testing as streambank erosion control plants. Listed are some observations as to the merits of each plant:
1. Echinochloa holubii, Limpopograss, MS 924. This grass has maintained a good stand and spread is fair (average 2 feet

III. Advanced Evaluations - continued

H. 1.

- width). A fair amount of silt has built up in plants but some washing is occurring between plants and bottom of slope.
2. Panicum hemitomon, Maidencane, MS 2138. Plants have maintained a good stand and spread well (average 4 - 6 feet). There is a good build-up of silt in plants. The maidencane is making some spread up slope.
 3. Salix hastata, Halberd willow, MS 863. Plants have maintained a good stand and there is a very good build-up of silt within the stand. Soil sloughing from top of slope catches behind plants and grasses (Indiangrass, little bluestem, bermudagrass, etc.,) are invading on this area.
 4. Salix interior, Sandbar willow, MS 880. Stand is good but not as dense as that of Halberd willow and plants are taller. This plant is rhizomatous and spreads well. Soil sloughing from top of slope is catching behind plants and is being invaded by grasses and broadleaf plants.
- I. A grass adapted to the calcareous areas of East Mississippi and West Alabama, capable of producing good quantities of forage is needed. In an attempt to find such a grass, 23 accessions of buffelgrass; Pennisetum spp., obtained from Dr. Bashaw at Texas A & M University, were planted in rod rows in 1968. These grasses all winter killed at Coffeetown during the winter of 1968 - 69. This was a mild winter and some of these grasses were expected to withstand the winter here. Perhaps a combination of cold and soil moisture in excess of that from their usual range caused these plants to die.
- J. A test was made to find a plant capable of producing good quantities of waterfowl food when planted as late as mid-July. Four accessions of Echinochloa were planted July 23, 1969 in triplicate rows for comparison of yields. Due to shattering and bird use, exact yields were not determined but the plants are listed in order, from best to least yields, from observation:

MS 181 -	<u>Echinochloa</u>	<u>frumentacea</u>
MS 188 -	"	<u>crusgalli</u>
MS 182 -	"	"
MS 187 -	"	"

III. Advanced Evaluations - continued:

- J. None of the plants had yields comparable to that which can be obtained with MS 181, Echinochloa frumentace, when planted in early June. All plants did mature seed, however.

Field Evaluations will be covered under report by Mr. T. A. Bown, Field PM Specialist for the three states, Mississippi, Arkansas, and Louisiana.

ANNUAL TECHNICAL REPORT -
Plant and Seed Increases

Species	MS : No.	PI or : Other No.	Amount Planned Seed (lbs): Plants (ea)	Area in Production: Seed (lbs): Plants (ea)	Amount Harvested Seed (lbs): Plants (ea)	Purpose of Increase (See App.A)
<u>Ampelopsis breviped.</u> <u>Amur ampelopsis</u>	2665	NC 67-114	300	300' r.	77	22, 5
<u>Arachis monticola</u> <u>Reseeding peanut</u>	528	263393	700		15	20, 12
<u>Callicarpa americana</u> <u>Beautyberry</u>	2933		0	100' r.	50	22, 12
<u>Castanea alnifolia</u> <u>Trailing chinquapin</u>	4		0	200' r.	650	12
<u>Coreopsis lanceolata</u> <u>Lance coreopsis</u>	2378		2 oz.	1 rod row	2 oz.	22
<u>Cotoneaster racemiflora</u> <u>Redbead cotoneaster</u>	2936A	297597	0	100' r.	75	22
<u>Crataegus sp.</u> <u>Hawthorn</u>	2460	AM 2302	5,500	500' r.	0	12, 22
<u>Cynodon dactylon</u> , <u>Tifdwarf bermudagrass, Reg.</u>	2371	AM 1283	5,000 sq.ft.	5000 sq.ft.	50 sq.ft.	10,11,4
<u>Cynodon dactylon</u> , <u>Tifdwarf bermudagrass, Non-Reg.</u>	2136	AM 1283	200 sq.ft.	200 sq.ft.	0	10, 11, 4
<u>Cynodon dactylon</u> , <u>Tufcote bermudagrass, Reg.</u>	2372	BN 4198	5000 sq.ft.	5,000 sq.ft.	1947 sq.ft.	10,11,4
<u>Cynodon dactylon</u> , <u>Tufcote bermudagrass, Non-Reg.</u>	527	BN 4198	900 sq.ft.	900 sq.ft.	180 sq.ft.	10,11,4
<u>Echinochloa frument.</u> <u>Chiwapa japanese millet</u>	181	BN 8963-57	1600		3,850	12

ANNUAL TECHNICAL REPORT
Plant and Seed Increase

Species	MS :No.	PI or :Other	No:Seed(lbs):Plants(ea)	Amount Planned	Area in Production:Seed(lbs):Plants(ea)	Amount Harvested Seed(lbs):Plants(ea)	Purpose of Increase (See App.A)
<u>Echinochloa holubii</u> <u>Limpopograss</u>	924	207924	200		1/2 ac.	190	5, 7, 21
<u>Elaeagnus umbellata</u> <u>Autumnolive</u>	432	BN 12090	500		100' r.	325	3, 12, 22
<u>Elaeagnus umbellata</u> <u>Autumnolive</u>	2941		6000		400' r.	180	3, 12, 22
<u>Eragrostis curvula</u> <u>Lovegrass (Weeping)</u>	268	234558	2000		16 ac.	150	1, 2, 4, 6
<u>Eragrostis robusta</u> <u>Big lovegrass</u>	394	209-385	10		500' r.	5 oz.	1, 2, 4, 6
<u>Eragrostis robusta</u> <u>Big lovegrass</u>	443	234218	10		500' r.	4 oz.	1, 2, 4, 6
<u>Festuca arundinacea</u> <u>Artren fescue</u>	539	F 1079	30		1/10 ac.	15	19, 15
<u>Festuca arundinacea</u> <u>Ky 31 fescue</u>	1601		18000		70 ac.	17800	19, 15
<u>Glycine ussuriensis</u> <u>Wild soybeans</u>	128	163453	400		3 ac.	625	12
<u>Hemoracallis sp.</u> <u>Daylily</u>	2165		7000		1/2 ac.	2000	22, 6
<u>Ilex vomitoria</u> <u>Youpon holly</u>	2946		200		50' r.	0	22
<u>Juglans nigra</u> <u>Black walnut</u>	2937		0		300' r.	575	12

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Plant and Seed Increase

Species	MS :No. :Other No:	PI or No:Seed(lbs):Plants(ea)	Amount Planned Seed(lbs):Plants(ea)	Area in Production:Seed(lbs):Plants(ea)	Amount Harvested Seed(lbs):Plants(ea)	Purpose of Increase (See App. A)
<u>Juglans nigra</u> Black walnut	2938		0	300' r.	625	12
<u>Lespedeza cuneata</u> Sericea	2146		14,000	60 ac.	4,200	1, 3, 4, 6
<u>Lespedeza virgata</u> Spreading Lespedeza	126	218004	300	2 ac.	550	1, 3, 4, 6
<u>Lonicera maackii</u> Amur honeysuckle	2161	BN 8318	300	400' r.	350	12, 22
<u>Malus hupehensis</u> Crabapple	150	122586	8500	400' r.	7600	12, 22
<u>Panicum hemitomon</u> Maidencane	2138	NC 64-4	111,000	1 ac.	23,000	5, 7
<u>Panicum virgatum</u> Switchgrass (Wabasso)	17	F 686	2	100' r.	1/2	6, 16, 17
<u>Panicum virgatum</u> Switchgrass(Stuart)	18	AM 181	2	100' r.	6 oz.	6, 16, 17
<u>Panicum virgatum</u> Pangburn switchgrass	155	BN 14668	300	3 ac.	320	6, 16, 17
<u>Panicum virgatum</u> Kanlow switchgrass	445	PMK 160	2	100' r.	1 oz.	6, 16, 17
<u>Panicum texanum</u> Texas millet	358	F 639	400	2 ac.	65	12

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Plant and Seed Increase

Species	MS		PI or No. : Other No.:	Amount Planned		Area in Production :	Amount Harvested		Purpose of Increase
	No.	131	AM 1284	Seed (lbs)	Plants (ea)	Seed (lbs)	Plants (ea)	Plants (ea)	
<u>Paspalum notatum</u> <u>Wilmington bahiagrass</u>	131	AM 1284	3000			20 ac.	470		4, 18, 14
<u>Phalaris arundinacea</u> <u>Reed canarygrass</u>	540	F 1208	1			300' r.	0		19
<u>Phyllostachys bissetti</u> <u>Bisset bamboo</u>	499	143540		q.s.		300' r.		830 rh 49 pl.	8, 11
<u>Phyllostachys meyerii</u> <u>Bamboo</u>	498	116768		q.s.		300' r.		530 rh 29 pl	8, 11
<u>Phyllostachys meyerii</u> <u>Bamboo</u>	500	AM 315		q.s.		300' r.		1,020 rh. 53 pl.	8, 11
<u>Pistacia chinensis</u> <u>Chinese pistache</u>	2182	21970		300		200' r.	700		22, 12
<u>Pittosporum tobira</u> <u>Tobira pittosporum</u>	2678	NC 67-23				50' r.	21*		22
<u>Prunus caroliniana</u> <u>Carolina laurelcherry</u>	2693			1500		400' r.	625		22, 12
<u>Prunus caroliniana</u> <u>Carolina laurelcherry</u>	2947			100		75' r.	200		22, 12
<u>Pyracantha sp.</u> <u>Firethorn</u>	2670			0		100'	32*		22
<u>Pyracantha coccinea</u> <u>Scarlet firethorn</u>	366	AM 170		0		400' r.	125*		22

* Carried over from previous year

ANNUAL TECHNICAL REPORT
Plant and Seed Increase

Species	MS : No.	PI or : Other No.	Amount Planned : Seed(lbs):Plants(ea)	Area in : Production:Seed(lbs):Plants(ea)	Amount Harvested : Plants(ea)	Purpose of Increase
<u>Quercus myrsinaefolia</u> Evergreen oak	6	74222	0	100' r.	51*	22
<u>Quercus pumila</u> Runner oak	370	AM 305	0	40' r.	16*	12
<u>Quercus pumila</u> Runner oak	371	AM 306	0	40' r.	3*	12
<u>Quercus pumila</u> Runner oak	372	AM 262	0	40' r.	26*	12
<u>Quercus virginiana</u> Live oak	2939	NC 68-20	0	75' r.	41*	22
<u>Quercus virginiana</u> Live oak	2940	NC 68-21	0	120' r.	125	22
<u>Robinia pseudocacia</u> Black locust	2906	257022	0	10' r.	9	1, 12, 3
<u>Salix glaucophylloides</u> Blueleaf willow	881	BN 13666-63	100	30' r.	100	5, 7
<u>Salix hastata</u> Halberd willow	863	BN 13679-63	12650	1/8 ac.	2560	5, 7
<u>Salix interior</u> Sandbar willow	880	BN 13671-63	11650	1/8 ac.	6800	5, 7
<u>Themeda triandra</u> Themeda	1870	276070	5#	400' row	0	3, 4

ANNUAL TECHNICAL REPORT

Plant and Seed Increase

Species	MS : No.:	PI or Other No.	Amount Planned :Seed(lbs):Plants(ea)	Area in :Production:Seed(lbs):Plants(ea)	Amount Harvested	Purpose of Increase
<u>Tridens flava</u>	744		5	400' row		4, 6
<u>Purpletop triodia</u>						
<u>Trifolium nigrescens</u>	989	206926	1000	10 ac.	1,110	6, 4
<u>Ball clover</u>						
<u>Trifolium vesiculosum</u>	329	233782	2600	9 ac.	2,405	19, 20
<u>Meechee arrowleaf clover</u>						
<u>Vinca major</u>	2362			1,000	200 sq.ft.	22
<u>Periwinkle</u>					0	
<u>Zizaniopsis miliacea</u>	949		2	100 sq.ft.	0	5, 7
<u>Giant cutgrass</u>						
<u>Mulching material</u>	(FP)		350 Tons	175 ac.	158 Tons	1

IV. Certification and Release -

Two plants have been previously released as New Crops at the Coffeenville Plant Materials Center. These are Meechee arrowleaf clover, Trifolium vesiculosum, and Chiwapa millet, Echinochloa frumentacea. Foundation seed of both are usually grown at the Center but in 1969 Foundation seed of only Meechee arrowleaf clover was produced. A lack of understanding and/or communication between the Center and persons at Foundation Seed Stock prevented the field of Chiwapa millet from being certified in 1969.

A field of Wilmington bahiagrass, Paspalum notatum, was inspected in 1969 and passed the field inspection. Pending the results of germination and purity analyses test, the seed from this field will be certified as Foundation Seed.

V. Information

a. Articles:

Several articles were written in 1969 which publicized the Coffeenville Plant Materials Center. The titles of three such articles and the magazines in which they were printed are listed:

Kight, Troy G. 1969. Plant Centers Find New Crops for You. Progressive Farmer, Mississippi, Arkansas, and Louisiana Ed. 84(4): 72E and 72F

Knight, W. E., V. E. Ahlrich, and Morris Byrd, 1969. Registration of Meechee Arrowleaf Clover. Crop Science 9:393

Leard, H. H. 1969. Mississippi's Super Clover. Mississippi Farmer, August issue.

Articles covering meetings and group visitations at the Center were printed in newspapers of a local nature but some did appear in papers of wider distribution.

V. Information -

b - Visitation

- (1) Approximately 200 4-H Club members, along with several leaders and advisors from Grenada, Tallahatchie, and Yalobusha Counties, Mississippi, visited on two separate dates as two individual groups.
- (2) Fourteen students and one professor from the Pharmacy Department of the University of Mississippi
- (3) The office staff of the Yalobusha County Agricultural Stabilization and Conservation Service
- (4) Numerous persons visited the Center as individuals , or very small groups with no pre-arranged plans made for their visits.

c - Meetings -

The Soil Conservation District Commissioners of Area II met at the Coffeeville Plant Materials Center on July 23, 1969. As a part of the meeting, the group toured the Center facilities and had lunch under pine trees near the headquarters buildings. A total of more than one hundred persons attended.

